

FORESTY

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BIG BEND — Page Twenty-five

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We all need the tonic of the great inspirational park areas to clear up the cobwebs and rust of civilization. The best guarantee that that tonic will remain available to future generations is to be found in a sound governmental policy of acquiring primeval areas before they are despoiled, and maintaining them with the least disturbance possible, including freedom from man-made sights and sounds.—ARNO B. CAMMERER.



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An independent, non-profit organization with nation-wide membership
guarding America's heritage of scenic wilderness

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DEVEREUX BUTCHER, Editor

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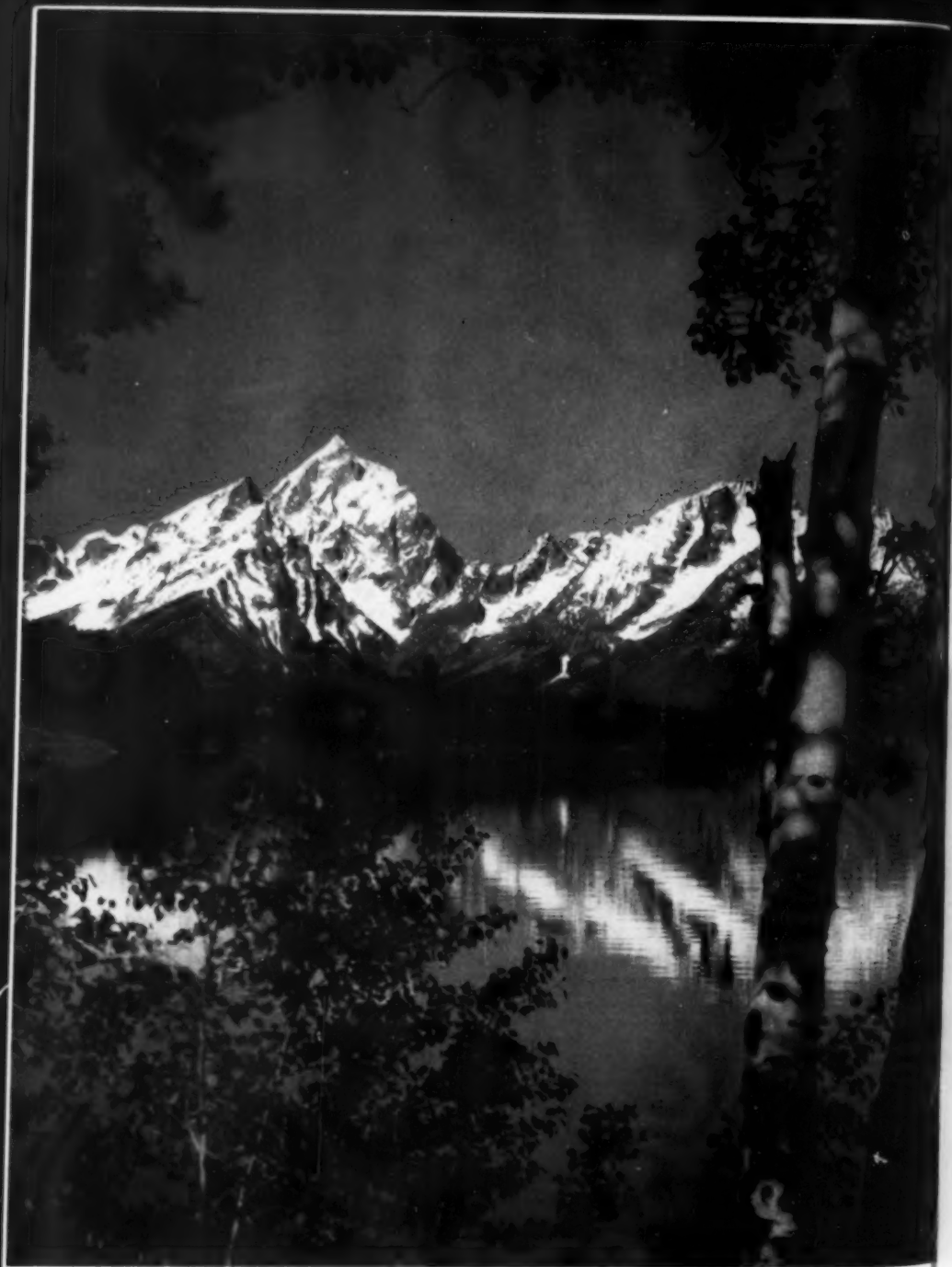
NATIONAL PARKS MAGAZINE, formerly National Parks Bulletin, has been published since 1919 by the National Parks Association. It presents articles of importance and of general interest relating to the national parks and monuments, and is issued quarterly for members of the Association and for others who are interested in the preservation of our national parks and monuments as well as in maintaining national park standards, and in helping to preserve wilderness. (See inside back cover.)

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Roland Wolfe

Grand Teton National Park across Lake Jackson.—“The national parks were never in greater danger than they are right now.”

The Squeeze Is On the National Parks

By WELDON F. HEALD

MORE than three quarters of a century ago the American people decided that there were some parts of their country so utterly magnificent that they should be preserved intact for the enjoyment, education and inspiration of generations to come. Thus, with the closing of Wyoming's Yellowstone region from public entry in 1872, our National Parks were born. Through the years, such outstanding examples of scenic America as Yosemite Valley, Mount Rainier, the Grand Canyon, Great Smokies and the Everglades of Florida have been added, until today our national park system comprises the finest exhibition of unspoiled natural grandeur anywhere in the world.

These twenty-eight parks of ours are scattered through twenty states and two territories. They constitute a priceless heritage, but they belong to us in trust only. We have agreed to guard these parks carefully and to bequeath them unimpaired to future Americans. With time, they increase in value, for the day is not far distant when the national parks may be the last bits of primitive America left as God made it.

But let us not congratulate ourselves on our unparalleled national parks just yet, or take pride in our present stewardship. The national parks of the United States were never in greater danger than they are right now, and unless we act immediately we are going to lose them in substance, if not in name.

Greed, indifference and ignorance, like termites, are undermining the whole national park structure. The individual parks are starved for funds, and their facilities are rapidly deteriorating; their timber, water and mineral resources are being threatened; increasingly they are being transformed into overcrowded, juke box, cocktail lounge resorts with scenery as a

side line; and vandalism has reached serious proportions. However, the fault lies not with the Department of the Interior, which administers the national parks, but with their owners—the people of the United States.

Since World War II, lumbermen, cattlemen, miners, power interests and promoters of reclamation projects have been putting increasing pressure on Congress to open up the national parks and monuments to commercial exploitation, and most of us seem passively willing to let these people get away with juicy handouts at our expense. The leaders of this nation-wide squeeze-play have set up an insistent hue and cry that the material resources of the national parks are too valuable to be withheld from commercial use. A surprising number of solid citizens are joining in the frenetic clamor that we must dam a river in this park, cut the timber in that park, mine several others and allow grazing in all parks. As usual, these raids on public property are invoked as patriotic measures for preserving national security, prosperity and well-being.

Here are a few of the battles we will have to win if we are to keep our parks inviolate, according to our agreement.

Up in Montana, the proposed Glacier View Dam, a power and flood control project on the Flathead River, envisions a reservoir twenty-five miles long. This would inundate 20,000 acres of forests, streams and lakes in some of the finest wilderness of Glacier National Park. Furthermore, the artificial lake would greatly reduce the park's wildlife by flooding a large part of the winter range.

Then, over in Washington State, lumber interests are demanding that 35,000 to 60,000 acres be amputated from Olympic National Park. This includes some of the last remaining stands of the Pacific North-

west's magnificent spruce-fir "rain forests."

Down the coast in California, some of Kings Canyon National Park's most spectacular glaciated valleys are threatened by five power dams proposed by the city of Los Angeles. The recent drought, too, has stimulated the state's cattlemen to revive agitation that national parks be thrown open to grazing.

In Arizona, Grand Canyon National Park is not only constantly besieged by powerful cattle and mining interests, but now is in the coils of the gigantic Central Arizona Project. The dams, diversion tunnels, penstocks and powerhouses of this \$750,000,000 giant of hydroelectric and irrigation engineering would make a plaything of the Colorado River in and around the Grand Canyon, much to the detriment of national park values.

Skip to Kentucky: We find that famous Mammoth Cave may become nothing but a memory. The plan for a flood control dam on Green River would back water into the caverns and eliminate the national park entirely.

And so it goes all over the country. The squeeze on the national parks comes from every direction, and resembles some tireless, hydra-headed monster. As soon as one threat is disposed of, another rears up.

Perhaps the greatest dereliction in regard to the national parks is the present policy of indifference toward their present and future needs. Although the number of park visitors has skyrocketed in recent years to some 31,000,000 in 1949, funds for maintenance and administration have been insufficient to the point of a general, accelerated deterioration of all park facilities. Roads and buildings are woefully inadequate; the parks are understaffed; campgrounds are crowded; and in many

cases sanitary provisions are inadequate.

The pressure to dismember the national parks for commercial exploitation and the limited Congressional funds for their upkeep are serious implications that the richest nation in the world can no longer afford the practical democratic ideal upon which the national park system was built. However, our national parks and national monuments together amount to only 22,400 square miles—less than seven-tenths of one percent of the country's area. Is this a preposterous proposition that the United States is so close to the bottom of the resource barrel that we are forced to raid this infinitesimal part of our land in order to come out on the black side of the ledger?

In 1916, the American people, through their Congress, established a national park service to administer the parks and "to conserve the scenery and the natural and historic objects and wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for future generations."

There seems no alternative to us today other than to keep faith with the Americans who conceived, fought for and preserved the national parks. They bequeathed them to us for safe keeping. It is our duty to hand them on uncut, unhacked, undammed, un mutilated and unchanged to the millions of Americans to come.

So, as an owner in trust of the national parks, it is to your advantage to get into the fight to preserve these irreplaceable samples of primeval America. Write or wire your representative and senator today—**HANDS OFF THE NATIONAL PARKS.** They belong to us, our children, and our children's children so long as our united nation shall endure.

On the evening of December 1, your Executive Secretary lectured and showed his kodachrome slides on the national parks and monuments. The talk was held in the Department of the Interior auditorium, Washington, D. C., and was one in a series of lectures regularly sponsored by the National Park Service. There was an audience of more than 600.

ISLE ROYALE

AN IMPRESSION

By DELOS E. CULVER, Member
Board of Trustees, National Parks Association

THE quality of solitude plus the factor of inaccessibility are perhaps more successful and essential to the preservation of primeval beauty and all life which composes it than most of man's prohibitions, legal or physical.

Among the areas in America's magnificent primeval park system, none rates more highly, in the estimation of the wilderness-naturalist enthusiast, than Isle Royale in Michigan's northern waters of Lake Superior. Isolated from Minnesota's shores, the nearest mainland on the north, by twenty miles, with a rough voyage southward of some fifty miles to park headquarters at Houghton, Michigan, the island enjoys a geographical protection which,

coupled with a short season and rugged climate, affords a degree of isolation few parks experience.

As one approaches the island, headlands and jutting cliffs greet the eye; but it was the interior, its plant and animal life, scenery and wilderness environment that attracted us. While Isle Royale is historically interesting to those who follow man's perpetual effort to "subdue" the wilderness, it was not the island's story of human activities that brought us here; but rather an intense desire to investigate its present wilderness character and all the beauty of life composing it.

Because of their subsequent bearing on wildlife, from days long past, it seems

Duncan Bay from Lookout Louise.

Delos E. Culver



appropriate to mention that some of the earliest copper mines to be opened (and left open) by white men are on Isle Royale. Most, if not all, of those deep pits are unguarded and form a hazard to wildlife, especially the moose. Based on odors emanating therefrom, it was reported, during our visit, that a moose lay dead in the bottom of one such shaft. Lack of funds to properly barricade these open mine shafts is the primary reason for their continued danger to wildlife.

Our arrival had purposely been timed to coincide with the last days of the park's open season for visitors in order to enjoy a maximum of solitude. While such proved its worth many fold, it did cut our stay shorter than anticipated, for winter comes early to Isle Royale and one must go out (if he is going at all) when the boat goes.

Perhaps, to the lover of the primitive, the greatest thrill Isle Royale has to offer is the absence of roads, or even trails, into the back country. There are three major trails, one out of Washington Harbor and two out of Rock Harbor. The longest of these reaches eight or ten miles, and all, mind you, unimproved foot trails. Other than these there are no thoroughfares except moose trails in all of the park's 210 square miles of forests, ridges, bogs and willow thickets. In the valleys lie crystal clear lakes banked by dark forests of spruce and fir. The higher ridges of the old burn present, in striking contrast, an atmosphere of "barrens," where mosses, lichens, ferns and rocks are the dominant features. It was in such a spot that a dwarf snowberry only thirteen inches high was discovered laden with waxy white fruit.

Only those who have spent much time in the brooding silence of the north country can comprehend the recurrent thrill of each succeeding visit. Only those who have sat quietly alone in such splendor, absorbing unto his very soul the greatness of the whole, from the tiny lichen under foot to sighing of the wind through the fir tops, can understand the grandeur of a roadless,

trailless, manless wilderness. And that is the interior of Isle Royale.

Islands, by virtue of their size, geographical location and geological formation, are frequently restricted in variety of topography and in many instances, of species of plant and animal life. But one could spend a lifetime on Isle Royale and still not discover all of its beauty.

Unquestionably, the most outstanding and magnificent creature on the island is the moose. While all tourists want to see these great animals, it is doubtful that many venture far from the trails in their quest. A primary object of our trip was to see and study as many moose as possible and, above all else, to secure just one outstandingly exceptional picture under equally exceptional circumstances. As fate would have it, this order was filled at the most unexpected moment.

It is one thing to visit in midsummer the favorite pond where moose consort for relief from their insect tormentors and study these great beasts as they loll shoulder deep in the cooling waters, but quite another unexpectedly to come face to face, at exactly sixty-four feet (as subsequently stepped off), with a rather determined old bull on a narrow trail, deep in the forest at the beginning of the rutting season. And when that gentleman refuses to give trail, it becomes a matter of considerable interest, to say the least. Perhaps the meeting, plus the author's stupidity in handling the situation, is worth recalling.

We had separated on the day of the incident, Mrs. Culver taking the trail of a smaller bull, while the writer decided to track down the maker of one of the largest hoofprints yet found on the island. The trail wound through the forest for half a mile, and then entered a willow thicket through which it was still possible to track with accuracy. However, a short distance beyond, it rapidly dwindled in a beautiful sphagnum bog interspersed with alder clumps at widely separated points. Those who have tried to track anything, from man



Delos E. Culver

The author surveys the wilderness.

to moose, through such a bog, can appreciate that here was the end of the trail. Repeated efforts to locate the telltale exit tracks on the opposite side of the bog were fruitless. Climbing to a knoll some thirty yards to the right, the author stopped to rest, look and listen. It was a typical gray day of the north country. A stillness pervaded the forest that one could almost feel. Not even the noisy, lovable little chickadees were in evidence, while over it all hung a heavy leaden sky. At that very moment the silent loneliness of the primeval wilderness was at its best.

Then it happened! Like the impact of a sledge hammer on plate glass, shattering that silence into a million fragments, came a bellow, clear, resonant, deep-throated, surely from the very hoofs of its maker.

(Subsequently I learned that Mrs. Culver, almost a mile distant, had heard it, too.) It seemed but a few yards below the bog. In years past, such a bellow had been heard by the author on several occasions of varied circumstances, producing always a spine-tingling thrill. But never, perhaps, did the spine tingle to quite the degree as on this occasion. A few moments of silence ensued, and then, visible only under the lower branches of the forest, came four great black and tan legs of the bull moose moving rhythmically, silently up the trail like some great man-made machine, followed close behind by a second and smaller set, belonging undoubtedly to the lady of his choice. He was returning up the trail, and at that very moment, was crossing the bog in which the trail had been lost, his great body hidden from view by low hanging branches of the forest. Seconds passed as if hours and then suddenly out of the bog into a small clearing at the willow thicket moved the majestic form of one of the largest bull moose it has ever been my fortune to see. Into the thicket he moved slowly, quietly, the huge shoulder muscles rippling under a beautiful coat of glossy ebony black. His great antlers towered high above the scrub willows as he passed up the trail out of sight. At this time, because of my admiration and excitement, the cow's absence was not noticed, and this oversight was shortly to prove responsible for the major thrill of the incident. Quietly descending the knoll, the writer promptly found the tracks, and then began a slow, cautious—very cautious—trailing. Through the willow thicket into the forest the tracks led, and, head down, studying each of those great hoofprints, went the author, intent more on the job of tracking than the possible nearness of the quarry.

There is a certain something, call it intuition, if you will, which in times of uncertainty prompts one to stop and take stock of the situation. And that is what happened. When I had gone a hundred yards or so within the forest, something

deep down within said "wait." Startled by the suddenness of the warning, I halted abruptly, gave a quick glance upward and, there, exactly sixty-four feet distant, standing motionless in the trail squarely facing the author, was His Royal Highness, head high, antlers pitched backwards, eyes fixed with an intense stare showing considerable of the whites (which, rest assured, did not improve first impressions), nostrils gently dilating. At that very moment everything vanished. The forest above, the earth below and everything in between melted into thin air. Nothing remained in this world but MOOSE!

How long we stood there staring at each other is problematical. Perhaps five minutes, perhaps less. Then the realization dawned that Mr. Moose apparently had no intention of retreating or even side-stepping the trail for any reason whatsoever. At this point the reader's attention is again directed to the fact that during the whole incident the camera was in hand, properly timed, focused and ready to shoot. But was there as much as a single shot? Not that subsequent records could prove.

Unconsciously the camera was slowly transferred from hand to under armpit in order that both hands might be free to experiment. A few moments additional deliberation on the part of both, then came two resounding handclaps from the author. Instantly, without a moment's hesitation, that great beast took two deliberate steps forward, as the author instinctively took two backward. At that moment it became very clear that the gentleman had not the slightest intention of giving up the trail. Then it was that memories of stories, especially one by Charlie Shevlin, Superintendent of Isle Royale, regarding the experience of others under like circumstances, came to mind. Instinctively a quick survey was made for climbable trees, but this only revealed that the dense, dark forest in which we stood was comprised of trees that, while tall, were merely oversized clothes props and wholly unsuitable for either climbing or protection from an old bully of a moose. Then and there, definitely deciding that "discretion was the better part of valor" the author began a sidewise back walk off the trail toward the knoll,

Hidden Lake as seen by the author en route to Lookout Louise.

Delos E. Culver



always facing the object of admiration. Slowly swinging his great antlered head, watching every movement, the moose turned his body only when the angle of observation required it, as he watched the object of his interest slowly but surely gain the knoll. Standing there at a reasonably safe distance, his interest rapidly waned and, turning completely around, he strode some ten paces into a nearby alder growth. There, his great body hidden, with only the top of his head and majestic antlers visible, he stood motionless and was still standing when the writer slipped quietly down the opposite side of the knoll. Instantly there was a crash some fifty yards distant as the startled cow dashed off through the forest. Then the action of the whole incident became apparent. Undoubtedly, attack was far from the old boy's mind. Ascending the trail with his cow, after sending forth his bellowing challenge to any neighboring bulls harboring ideas of nuptial conquest, he had suddenly realized she had dropped behind. Returning down the trail, his search brought him face to face with, not his ladylove, but a human being, with whom he decided to stare it out. Had the author not inadvertently come between bull and cow, probably this incident would not have occurred. Most such situations, usually interpreted as intent to attack, are undoubtedly prompted by like motives. Thus ended one of the finest encounters with the most magnificent creature of this continent.

It was a fitting prelude to one of those proverbial "red letter days" that was to bring additional wilderness sights, sounds and impressions that linger down through the years. Among them was a pair of pileated woodpeckers only ten feet away on an upright stub twelve feet high, who, for some unexplainable reason, performed what in the spring would have been considered a full nuptial display; another bull and two cow moose racing madly through the forest just beyond some beaver cuttings we had approached to examine; and that

night, the continuous eerie yapping of a coyote coursing up and down the forest back of our cabin brought a perfect day to a memorable close. And what a sense of satisfaction it was to know that these glorious creatures of nature would not, soon after our departure, be pumped full of white-hot bullets in the name of "sport."

One of the most interesting birds on the island, though hard to find, is the northern sharp-tailed grouse, *Pedioecetes phasianellus phasianellus*. Linn. Plentiful droppings and an occasional feather were found on the trails, but no grouse were seen. How this species originally came to the island is not known, but it is unquestionably here and in fair numbers.

For the botanist, there are endless thrills, both in the study of species and ecology. The park contains bare, windswept ridges of only six or seven hundred feet elevation covered with sub-alpine mosses, lichens and dwarf shrubs; while half a mile away, in the bog below, are magnificent clumps of orchids, pitcher plants and skunk cabbages. Here are bewildering possibilities for endless study. In the forest likewise is an amazing array of wild flowers ranging from the ghostly indian pipes to the exquisitely dainty harebells.

Reminiscent of man's activities on the island prior to its establishment as a national park are two abandoned C.C.C. camps which unfortunately are not showing many signs of disintegration. These buildings, together with the open mine shafts and a moderate amount of commercial fishing in park waters constitute the only outstanding factors adversely affecting the wilderness character of the island and its wildlife. The only obstacle precluding their elimination is lack of money.

Days pass rapidly in such an eden, and with each succeeding day there came to us the realization that a change was creeping over the island. The sky had remained overcast most of the time. A deadening calm had settled over the forests, broken only

(Continued on page 31)

Rockefeller Gives Jackson Hole Lands

ANOTHER progressive step in the struggle to preserve the scenic and wild-life lands in Jackson Hole, Wyoming, was taken on December 16. On that day, Laurance S. Rockefeller, on behalf of his father, John D. Rockefeller, Jr., presented to our new Secretary of the Interior, Oscar L. Chapman, deeds to the Rockefeller lands within Jackson Hole National Monument.

This gift to the people of the United States is the result of the public-spiritedness and generosity of John D. Rockefeller, Jr., who had purchased the lands and maintained them over a period of more than a quarter of a century, in order to preserve the natural beauty of one of the most spectacular regions in the country.

In a National Park Service news release, Secretary Chapman is quoted as saying, "It is a matter of great good fortune to present and future Americans that Mr. Rockefeller's interest was enlisted during the middle 20's in the preservation of these lands for public use, and that he was willing to devote his funds so generously to their acquisition." Secretary Chapman expressed his gratification that the Rockefeller family will continue their interest in the area, despite this change of jurisdiction. He pointed out that this interest will continue, through Jackson Hole Preserve, Incorporated, in the restoration of historical structures, such as Menor's Ferry, which was restored last summer and put into use during the tourist season; that operation by that non-profit corporation of the tourist lodges located on the ceded lands will continue; and that the corporation will continue to participate in administering the Jackson Hole Wildlife Park.

Secretary Chapman made it clear that transfer of the lands to federal ownership will in no way affect leases entered into in recent years with local citizens for cattle and dude ranching operations. Such leases are fully protected until expiration dates.

The question of tax reimbursement to Teton County for the lands now removed from private ownership may again arise as a result of this transfer. The right to such reimbursement has been recognized by the Department of the Interior, and for several years the Department and the National Parks Association have supported legislative proposals that would give the necessary financial relief to the county. To that end, however, legislation has not yet been enacted.

The Jackson Hole lands are far from the only gift from Mr. Rockefeller to the nation. Other donations were mentioned by Secretary Chapman as follows:

"In addition to his fine contribution in Grand Teton National Park and Jackson Hole National Monument, he has made other important gifts that show his faith in the national parks as the nation's greatest places of beauty and wonder. To defray one-half of the estimated cost of acquiring lands for the Great Smoky Mountains National Park, in North Carolina-Tennessee, he contributed \$5,000,000. To Acadia National Park, in Maine, he has contributed approximately \$3,000,000 in lands, roads, and improvements. To save a magnificent stand of sugar pines in Yosemite National Park, California, he has donated approximately \$1,650,000 in lands and cash. He has also contributed to Yellowstone National Park, in Wyoming-Montana-Idaho, Crater Lake National Park, in Oregon, Mesa Verde National Park, in Colorado, and Shenandoah National Park, Colonial National Historical Park, and George Washington Birthplace National Monument, all in Virginia.

"Those who enjoy California's famous Redwood Highway owe him much, for through the Save-the-Redwoods League he gave over \$2,000,000 to the State of California to preserve the cathedral-like grove of coast redwoods in Bull Creek Flat."

THE 1949 FOREST FIRE RECORD

By L. F. COOK, Assistant Chief Forester
National Park Service

THE first nine months of 1949 provided an above normal amount of high danger in many areas of the national park system as a result of weather conditions. The drought that has plagued New England for the past three years continued until mid-September. Southern Florida also experienced a dry period in the early spring. Despite the blizzards of last winter, extremely critical fire danger, with much lightning, was experienced in the northern Rocky Mountain-Black Hills region. A period of very high danger also occurred in the Southwest during August and September. The normally long, dry season in California was accompanied by many severe lightning storms. Only in the Middle Atlantic states and in the Pacific Northwest have relatively easy fire conditions prevailed.

Despite the general severity of fire weather, the number of fires occurring within areas protected by the National Park Service, a total of 375 for this year, is slightly below the average of the past ten years for the first nine months of each year. At least 171 of these fires were caused by lightning, which is only slightly less than the largest number of lightning-caused fires ever recorded in a single year. The number of man-caused fires is far below the average number for this period, which may indicate that the public is becoming more conscious of the need for forest fire prevention.

The area reported burned—27,918 acres—is next to the largest total burned area for any year of the last decade except 1941, but as in that year, a major part of the total is grassland or brush. The forest area burned to date is below the average.

The largest area burned in any reservation occurred during July, when two fires starting on succeeding days, and probably of incendiary origin, burned over 17,000

acres of grassland in Lava Beds National Monument, California. Another later fire which started some distance outside the monument burned an additional 2800 acres of grass inside the area. Lava Bed's grassland is valuable plant and wildlife habitat.

The new Everglades National Park experienced several large grass fires in and adjacent to the area of incendiary or debris burning origin. Several large ones were stopped outside, but seven fires burned more than 3000 acres of grassland inside.

Two lightning fires which started in remote sections of Sequoia National Park's High Sierra burned 1200 acres before being controlled.

In mid-August, a period of very severe lightning storms occurred over the entire northern Rocky Mountain region starting hundreds of fires which taxed the facilities of all protection agencies. All of those starting inside park areas were controlled while small, except four lightning fires, which occurred in remote parts of Yellowstone National Park, and one, presumed a smoker fire, which started at the same time in that park. These fires covered 3022 acres before control was effected.

The National Park Service has continued its intensive fire training program during the year, with particular emphasis on fire prevention, organization for handling fires effectively, and fire safety. The marked reduction in the number of man-caused fires, despite the great possibilities of fires starting in unusually dry fuels and the presence of more people using park areas than ever before, is very encouraging. More than two-thirds of all fires were controlled with less than a quarter acre burned and nearly ninety percent at less than ten acres. No fatalities and very few injuries were reported in park fires during the period.

Growing Pains in the Everglades

By DANIEL B. BEARD, Superintendent
Everglades National Park

"WHAT the Everglades National Park needs most," wrote Anthony F. Merrill in the July-September 1949 issue of National Parks Magazine, "is a large measure of all around understanding from everyone coming in contact with it."

Understanding, according to my dictionary, is "the sum of mental powers by which knowledge is acquired, retained, and extended; the power of apprehending relations and making inferences from them." Being less erudite than Mr. Webster, I would say that understanding a new na-

tional park involves: an appreciation of its natural attractions, present and potential; the ability and experience to relate natural phenomena of a new park to the basic purposes of the national park system; and, above all, a mature sense of proportion. Fundamentally, understanding a new national park includes the ability to discern the shape of something that is slowly and laboriously forming—the knack also of separating the things that really count from those of passing moment, whether they be disturbing or pleasing. From the very be-

The vast, lonely distances are broken here
and there by dense jungle-like hammocks.

National Parks Association



ginning, those close to Everglades National Park recognized it as a long-term venture which, like Rome, could not be built in a day.

On a bright, warm December afternoon, in 1947, the President of the United States stood on a palm-thatched platform at the Town of Everglades in Florida to dedicate the new, undeveloped Everglades National Park, some thirty miles away. (See *Everglades National Park Dedicated*, in NATIONAL PARKS MAGAZINE for January-March, 1948.) The National Park Service was represented by a skeleton staff then on duty and a few rangers borrowed from other areas. Flanking the President were some of the distinguished men and women who had labored hard through the years for this occasion. President Truman spoke of the new park as marking another great conservation achievement: "The benefits our nation will derive from this dedication will outlast the youngest of us," he said, "they will increase with the passage of years. Few actions could make a more lasting contribution to the enjoyment of the American people. . . ."

Speakers who had preceded the President—Master of Ceremonies John Pennekamp of the Everglades National Park Commission, Senators Claude Pepper and Spessard Holland, Secretary of the Interior Krug and Governor Millard Caldwell—had spoken of this new park in terms of the future: "In its present undeveloped state it is geologically, biologically, and horticulturally one of the finest." "In making this presentation of what may become the nation's most popular and unique park. . . ."

" . . . the federal government and the Department of the Interior appreciate their new responsibilities and will carry forward . . . the work remaining to be done. . . ."

"I sincerely hope that the National Park Service, which now begins its patient labor of years to safeguard this immense wilderness and at the same time make it subject to visitation and enjoyment by millions of citizens, will have continued and ardent

support. . . ." "In its ultimate development it will justify the great and generous faith of our people in making it available to the nation. . . ."

Almost two years later, a small cabin cruiser flying the green and white pennant of the National Park Service twisted its way through the serpentine channel of Shark River cutoff and out into Oyster Bay. It was toward evening in late August, and the heat was oppressive. A falling barometer caused by a hurricane then approaching Florida gave one a feeling of depression, and the still air seemed heavy and ominous. Tinted clouds surrounded the entire horizon and reflected in the brown waters in the blazing glory of a rainy season sunset. The rangers were returning from a hurried patrol to "batten down the hatches" of an outlying station before the storm.

The craft slowed down while the two park rangers aboard trained their glasses on Whitewash Key, where thousands of egrets and ibises had formed a roost since the area had been protected from wanton shooting. As the boat lost headway, hordes of minute sandflies began to bite the rangers and get into their hair. Already wet and uncomfortable from afternoon downpours, they got their boat underway again down Cormorant Pass between the giant mangrove keys and out into White-water Bay. The ranger at the wheel checked his watch and pointed to the radio. His companion picked up the transmitter:

"WSEO-2, WSEO-2. This is WZ2508. Over."

After a few moments, the reply came: "WZ2508. This is WSEO-2, Coot Bay Ranger Station. Over."

"WSEO-2. This is WZ2508. We are entering Whitewater Bay and should be at the station by eight-thirty. What's news on the storm? Over."

"WZ2508. The latest weather advisory places the storm seventy-five miles off the coast. It should hit the mainland a little north of us in the morning. Headquarters tells us precautions are to be taken. Over."

"WSEO-2. How's the road out?"

"WZ2508. The road is covered with water, but we are taking both trucks. The appraisers from our Land Acquisition Office are still here and helping us board up. After we tie down the boat they will go out with you. Over."

"WSEO-2. O.K., O.K., we'll be in pretty soon. See you then. This is WZ2508 signing off until eight o'clock."

The cruiser continued on its way in the gathering darkness. One ranger posted himself as a lookout, while the other remained at the wheel. The lookout watched the thin streak of shoreline and keys, judging his position by the relative darkness of the mangroves. Very dark meant a near key or point, not so dark, more distant ones. Far off to the northeast a glow in the sky marked the incongruous proximity of the City of Miami.

The "patient work of years" by the National Park Service was underway.

The "beginning" of Everglades National Park, dedicated that bright December day

in 1947, consisted of 272,553 acres of lands and waters donated by the State of Florida, much of which were interior lands. It also contained 188,348 acres of private lands. These private inholdings were the strategic lands—coastal areas, beaches, pinelands, and places served by the one substandard road that angled through the new park. The Fish and Wildlife Service continued to administer an additional 731,647 acres which would be added to the park later. Some of it was private land, other parts were public lands and waters. Were it not for the generosity of the people of Florida in making \$2,000,000 available to the government for purchase of these private inholdings, the situation would have been impossible, and Everglades National Park would never have been.

Major L. M. Gray was dispatched from the National Park Service's regional office in Virginia to head up a land acquisition office at Coconut Grove, being set up to handle the state-donated funds. He soon found his task a most arduous one. Few people had any clear idea of who owned

Mangrove forests of the Shark River country.

National Parks Association



what. He dug out of the records the plat maps of ridiculous boom cities in mangrove swamps, with faraway owners in Nebraska and Illinois, who thought their "lots" were in the midst of a modern development. He found that other lands had been exchanged for a boatload of mullet, two pompano nets, and an old Ford truck.

Systematically, land records were clarified and surveys made. In the midst of his work, Major Gray became ill and later died. His place was taken by Albert Manly, who came from retirement after a brilliant career as Chief of the Appraisal Section of the Interstate Commerce Commission. Patiently and carefully, Mr. Manly and his associates compiled appraisal data and land information. Land owners were contacted and several purchases made which reduced the private inholdings by more than half. The Florida Federation of Women's Clubs gave 4000 acres.

Outside of the official circles of the National Park Service, the supporters of the park continued to work at buttoning up all loose ends. Acts of the Legislature were protested and carried to the Supreme Court, where the park supporters were unanimously upheld. Legislation in Congress was needed to permit the purchase of inholdings from recalcitrant owners who recognized personal advantage by holding on, and either refused to sell or made their asking prices unreasonably high. For over two years, supporters of the park and the Florida Congressional delegation worked for this legislation against the obstructive tactics of a minority of organized landowners. This very vital legislation was finally passed in late September, 1949.

South Florida's winter seasons of 1947-48 and 1948-49 were happy ones for the many folks who deal in "yankees and sunshine," for more than 70,000 visitors came to Everglades National Park in one year. While the majority of these people recognized that the national park was still not ready for them, some were bitter in their complaints because they did not find the

facilities and services normally expected in a national park. It was discouraging to the rangers in the field, who were undergoing the considerable hardships of pioneering the park, to be confronted with this criticism; but it could not be completely avoided for the first two years.

Decisions had to be made in the beginning which, for better or for worse, would affect the future of this new national park for a generation—decisions, indeed, which might even mean the continued existence of the park itself. Facetiously, we often remarked that plans were being laid for "forty years from now" to emphasize that in spite of the exigencies of the moment the National Park Service was trying to look ahead and make as few mistakes as possible.

The most important of these decisions were based on plain, old-fashioned horse sense. If the National Park Service should begin development of the park (providing funds were at hand for such) when the land acquisition program was just starting, the value of private inholdings would perhaps become so great because of the improvements that land acquisition funds would not be sufficient to finish the job. This has happened before. One of the major problems now facing the National Park Service, throughout the entire system of national parks and monuments, is the purchase of some 600,000 acres of private inholdings which, in the main, were of little value until they became surrounded by the national park lands. So, in spite of pressure from all sides to "git goin'" it was necessary to refrain until the land acquisition picture changed. Landowners in the park were understandably quite vocal in seeking government sponsored improvements!

Such monies as could be obtained for physical improvements in the park were earmarked for getting the National Park Service set up as the protecting and administering agency in the field and not, for example, for building a road to isolated



National Parks Association

The rare *paurotis* palms rise on slender stems above the hammocks.

private lands that still had to be purchased. Meanwhile, a great deal of work was going on that would pay off in farsighted developments of the future.

The casual park visitor of today would find the dreary wastes of Cape Sable Flats a very monotonous region. This is the country called the "tip of the United States mainland" or, as one person characterized it, "the very last end of nowhere" which lies between the still privately owned Cape Sable beaches and the squalid commercial fishermen's base at Flamingo. Flat, almost barren of vegetation, the muddy drainage canals suck in each high tide and spew it out again into Florida Bay.

Park rangers and biologists find that during the rainy season the Cape Sable Flats are a favorite place for many birds. At nightfall, many of these colorful birds fly off into Florida Bay to roost at Catfish, Dildo and Oyster Keys. In spite of the shooting that has gone on at Cape Sable Flats and in Florida Bay prior to establishment of the park, the birds are still present in huge flocks. Of course, this worthwhile spectacle is not seen by the park visitor in the peak month of February when salt water covers the whole area.

Under present conditions, it would seem rather absurd to think of the Cape Sable Flats as an interesting place for the park visitor to reach. But to neglect this area for the future would appear to be a mistake—at least as far as incomplete research to date indicates.

Would it be wiser for the government to undertake the restoration of natural fresh water conditions at Cape Sable Flats or to forget about it and spend the money on a picnic ground at the park entrance—supposing, of course, that there was not enough for both? It seems very likely that restoration of natural conditions plus continued protection will encourage the return of the abundant and varied wildlife of the past. Soil scientists predict that in fifteen years, with restored fresh water conditions, the chlorides of the salt water will be gone from Cape Sable Flats. This presumably will permit the regrowth of royal palms, thatch palms, mahoganies, cabbage palms, and associated species to the area. Again, it would seem that farsighted decisions must be made, risking, perhaps, criticism of the moment.

The pinelands of Long Pine Key, inside the park, afford another example of the changes that may occur, and which should be taken into account during the early stages of planning and development. At present, they form a somewhat uninteresting aspect—cut over, burned over and mutilated in many ways. Three years ago it was even worse. But, with protection from fires

the dense, tropical hammock growth is returning among the pines. The formerly bare rock surface is already being covered with leaf mould and pine needles. Reproduction of pines has been stimulated throughout the area. Deer tracks are seen more frequently, and Florida turkeys produced good broods this year. The whole aspect of this once scorned area is undergoing a change that, in a northern or western area, where growth is slow, would be classed as phenomenal. Outside of the park, bulldozers are knocking down the pine forests and preparing the land for avocado groves and urban developments. Homestead, once a lumber town, is now an agricultural community. People of today are amazed at the size of timbers in the older houses. The inexorable increase in population throughout the rockland country (pine areas) will gradually eliminate all of the Caribbean pine association outside of the national park. In its restored natural condition, Long Pine Key of tomorrow will be much more important than it is today.

One of the most significant movements in Florida is the one that is concerned with more intelligent handling of the Everglades' waters. Since fresh water is the ecological kingpin to Everglades National Park, any movements of this kind will have far reaching effects. The Army Engineers have worked on a flood control plan for the entire Everglades basin. In their report to Congress they said: "The proposed plan of improvement, however, would not damage or interfere with this great national park as the purposes of the comprehensive plan are aimed at restoring and preserving natural conditions over areas that appear unsuited for agriculture. During large floods, such as occurred in 1947, substantial releases of water through the controlled Tamiami Trail embankment would result in flows into the national park which would be similar to those which prevailed when the natural flood waters of the Everglades passed to the sea through that region. In dry periods, it would be possible, because of the pro-



National Parks Association

**Under protection, thick vegetation
is springing up beneath the pines.**

posed conservation areas, to release water into the park area which would assist in reducing fires and other damages which accompany periods of drought. In brief, it is believed that this comprehensive water control plan and the national park are complementary features of Federal activity necessary to restore and preserve the unique Everglades region."

With funds already approved by Congress to start this flood control project, the future situation in previously water-starved areas of the Everglades has tremendous bearing on the planning and development of the park. The main drainageway of the Everglades "River of Grass" swings in a wide

curve from Tamiami Trail on the north toward the Shark River system on the southwest coast of the park. Already, because of the cumulative effects of drainage, several feet of muck and peat soil in the Shark River "valley" have disappeared. With even a partial restoration of the natural water conditions and the fresh water head, which will hold back the salt, the ecology of the biologically fertile Shark River headwaters will slowly change. Will this have an effect upon the great Shark River Rookery, once the largest in Florida, and which in recent years dwindled, died, revived, and died again? What may we plan for or expect of this area in terms of future visitor use?

Everglades National Park is new land. In some places it is still in the making. Many have remarked that one of the interpretive stories should be built around this fact. No accurate topographic survey has yet been made, but it is estimated that the highest point in the park is not more than ten feet above sea level. Any construction work, such as road-building in the park, must take into account the effect this will have upon the natural characteristics of the surrounding area. A road that would form a dike a mere twenty inches above the ground level would change conditions over many square miles. This is difficult for most people to understand. To build a simple, little road is like constructing a huge embankment; a canal, like digging a canyon, in so far as it affects natural conditions. Slapdash development today, to avoid criticism of the few, would be disastrous to Everglades National Park tomorrow.

With passage of enabling legislation relative to land acquisition by Congress, in September, the National Park Service can now begin to move forward with its plans and developments. Coot Bay Ranger Station will be the site of a temporary park concession this winter, where visitors can obtain food, gasoline and boats. An elevated nature walk is being built near Paradise

Key into Taylor River Slough. Far up the Gulf Coast, at Lostmans River, a ranger patrol station has been completed. Comfort stations will be constructed. The road has already been improved. Fire towers will be built to give continued and better protection to the park, which formerly burned over every year. The visitor to Everglades National Park this winter (1949-50) will see a great national park taking shape.

There is a subtle charm to the Everglades country. It has not, perhaps, the bright, dashing strokes of the Maker's brush as seen in many other parks, but it has the real and lasting beauty of a wilderness region unlike anything else in the country—vast, lonely distances where the sky is so much a part of the scenery that the towering clouds sometimes dominate the entire landscape; milky blue waters and quiet, brown pools; warm sunshine filtered among graceful mangrove roots; quiet, pristine beaches; the formidable wall of mangroves along the Gulf Coast; hurricane-thrashed shorelines, where delicate vanilla orchids entwine gray stubs of shattered buttonwoods; steaming green hammocks, in which strangler figs silently crush and kill their host trees; the flash of many wings; tousled heads of royal palms on sheer, cementlike trunks; a playful family of otters in a roadside pool; a bobcat loping down the road; an alligator's snout and bright eyes in a quiet cypress pool; spindly pines with twisted top-knots black against the setting sun; the swirl of a crocodile in a mangrove bordered stream; acres of "mullet mud" in the blue surrounding waters, where a school of fish is feeding; the crimson, pink, and white of roseate spoonbills in flight; the phosphorescent swirl of a tarpon in a tideway on a dark night; and always the sky, the changing cloud masses, and the waters. Everglades has no single feature, no prominent point of interest now or ever. It is a mosaic of many things seen, smelled, heard, endured and felt. Together they are the Everglades National Park.

Petrified Forest National Monument

By L. FLOYD KELLER, Park Naturalist
National Park Service

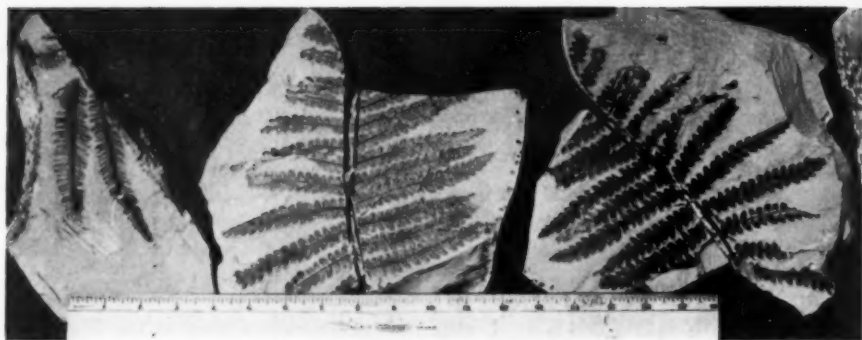
IN Northern Arizona, the land of amazing beauties and many wonders, lies a tract of land that once was the bed of a flood plain. The number of millenniums which have passed since the waters undulated and scintillated over what is now the State of Arizona is told by the nature of the strata in which the great fossil logs are found, and where the preserved bones of large reptiles and amphibians are embedded. These plants and animals lived during the middle and upper Triassic period of the earth's

geological history, some 160 million to 170 million years ago, and are now a part of the formation known as the Chinle.

Precisely in the heart of this abundant ancient water area is located the internationally famous Petrified Forest established as one of our first national monuments by proclamation (under authority of the Antiquities Act of 1906) of the late President Theodore Roosevelt in 1906, and was enlarged in 1932 by President Herbert Hoover when the climax part of the Painted

Triassic restoration with a phytosaur among the ferns and cycads.





Fossils show that this region was semitropical when the petrified trees lived.

Desert, amounting to nearly 50,000 acres, was added making a total acreage of 93,193.

Here we have the largest and most colorful concentration of petrified wood in all the world—gem and semiprecious logs of agate, onyx, carnelian, jasper, opal; chalcedony logs with heartwoods filled with quartz crystals such as amethyst.

Based on a "timber cruise," it has been estimated that there are seven million board feet of petrified wood or 50,000 tons exposed. Considering the past commercial value of ten cents a pound (there is petrified wood outside the monument boundaries), this would be worth about ten million dollars. However, the National Park Service is not interested in such enterprise but rather in the esthetic, scenic, scientific, and educational values of the areas held in trust, and these are invaluable. Here is another of nature's magnificent accomplishments reserved and protected for the benefit, enjoyment, and education of all the people for all time.

At the Rainbow Forest Museum the visitors deluge rangers with questions such as: "Who sawed the logs? What made these trees petrify? What makes the colors in the petrified wood? How heavy is this piece? What is agate? Which animal had three eyes?"

On the guest register we read comments as follows: "It is woody! This is a fake! Solid proof to the greatest skeptic! God did not designate time in the Garden, thus permitting science to be accurate in calculation. He did not designate time in the beginning (Genesis) when the earth was void and without shape—long before the 'Garden'."

Thus, on the basis of visitors' questions and upon their comments, the Rainbow Forest Museum exhibits have been designed to show and answer these frequently repeated inquiries. No interpretive development outline, museum prospectus or exhibit plan was followed. The exhibits just grew in reaction to a demand. Do you wonder why the visitors to the monument are enthusiastic and awe-stricken?

The interpretation of the origin of the petrified wood is determined by the study of the strata and of its contents. It is rather surprising to visitors to learn that the trees did not grow where they are now located. We know by the fossil fern- and cycad-leaf prints, and by the animal bones found in the shales, that the site was semitropical at the time when the trees, which are petrified, lived. Semitropics at this particular latitude would mean that the elevation was about at sea level.

The trees were conifers, related to the pine family. Their species is extinct today, but they have close relatives in the araucaria species of the South American and Australian pinaceous trees—the monkey puzzle and the Norfolk Island pine. The environment required for the production of these trees would be slightly different from that which existed in this low-lying, swampy area. The petrified trees are in concentrations, six in all, called “forests,” lying in prone-supine positions, distributed originally in 400 feet of vertical, sedimentary layers. These trees are still buried in 300 feet of shales and sandstone series. When you observe one of these “forests” as a whole, you can detect a circular arrangement after the manner of water deposition. The limbs, bark, cones and leaves are gone and some of the trees have been worn elliptical from dragging on the gravels.

Many of the gravels in the formation are of Permian origin and they have been traced to their source extending to the southwest about a hundred miles. The trees must have lived along the stream that left the gravels, probably being distributed from their present location to a point southwestward where

the floodwaters were sufficient to transport them. They died of natural causes; insect and fire kills, old age, wind and water uprooted some, and then they were floated into the lowland where they settled and were covered rapidly with silt, sand and volcanic ash conveyed by water and wind.

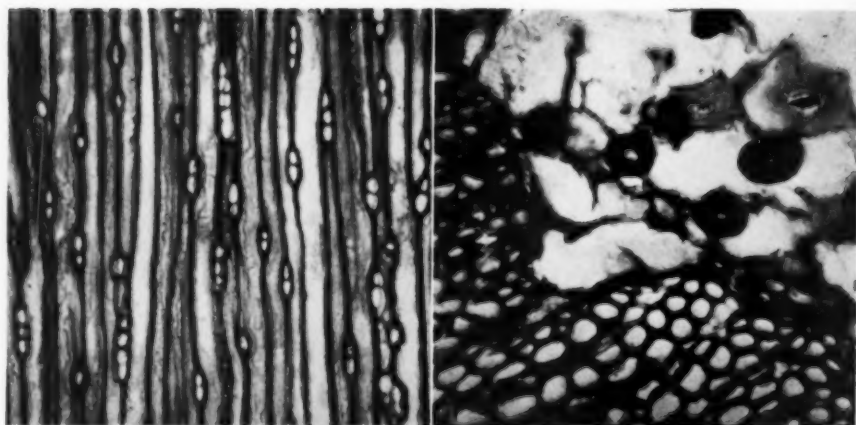
Thus, the oxygen necessary for decomposition of wood was excluded. Horizontal layers of volcanic ash sediments 3000 feet thick were deposited over the layers containing the logs.

Surface and underground water, filtering through sedimentary layers, dissolved minerals, the major one being silica. The mineralized water filtered through the wood of the buried trees, and deposited the minerals in the intercellular spaces of wood and in the cell cavities. Slowly, very slowly, the process proceeded, and the final result is the logs composed of about ninety-eight percent of minerals and two percent by volume of woody matter—cellulose and lignin. It is this original wood material which shows annular and cellular structures; it is the matrix into which the minerals were placed. Accordingly, we know that the petrified trees are of the same size

It is believed that pressure was the cause
for some logs becoming oval in cross section.

George A. Grant





Two microscopic views of the grain in petrified wood.

as in life or slightly smaller, because the bark is gone, and they have retained their primordial structures.

We can offer a close estimate on the time it took nature to petrify these logs, knowing the extent to which silica will dissolve in water (it is very slight), and considering the volume of a given tree, this computation can be made. Even if water, over or in the formation, were constant during the process, suffice to say here that it would require a diuturnity. We have recognized the filling of a lowland, the petrification process, after which followed a lowering of the land, then mountain range development, and finally erosion.

No, the wood did not "turn to stone." The water from the original organic tree is gone and this constitutes as much as ninety percent of some animal and plant bodies. The lack of water allows for much of the space now occupied by minerals. Mineralized solutions penetrating the trees brought small supplies of oxygen, which permitted minute progress of wood decomposition and rendered a carbonic acid, and because the mineralized water was alkaline, some of the minerals were deposited within

the logs. The old textbook explains petrification by the theory of replacement. If that theory were tenable, we could not say that wood was transformed to minerals. The theory implies chemical reaction between organic and inorganic substances. Wood is quite insoluble in water. It is not difficult to reverse the petrification process in a crude manner. The minerals can be removed and the organic wood can be seen projecting in relief and this substance can be removed, tested and examined.

There is a stratum in the Chinle formation lying above the petrified wood horizon, and this layer contains marine fossils. After the logs were petrified, the site dropped to below sea level and the ocean encroached. Then the Rocky Mountains began to develop on the east, and the Sierra on the west. Onward and upward rose the wood-containing strata lying between the ranges. Erosion by wind and water was now at work to uncover the massive Triassic jewels. She has struck a rich fissure, and our generation can observe her persistently in labor, tossing tombstones into the Pacific and Gulf drainages. Only one more geological day is required for the completion

of the task, but our time is much too brief to witness the finale of this leveling project.

Now at elevation 5472 feet we see the logs broken in blocks of consistent lengths. It was the earth movements that fractured them—the earthquakes resulting from the uplift. We note that the trees are broken in equal- or multiple-length sections. This is a physical and natural effect. Since earthquakes are simply manifestations of wave lengths, and the agatized logs possess specific frequency of wave length, isn't it logical that some of the blocks should be equivalent and that harmonics would be responsible for the multiples?

The straight sheer break is characteristic of the quartz mineral—it is harder than almost any form of steel and more brittle than glass. There are only about thirty minerals harder than quartz, but diamond, the hardest substance known, is fifty times as hard. Any of these thirty minerals can be used as abrasives in cutting and polishing this petrified wood. The breaks occur at right angles to the trunks because the short axes or weak zones exist there—the trees being long in proportion to diameters. In life, trees tend to crack horizontally because of the grain and direction of tensile

strength. Quartz, or petrified wood, has a specific gravity of 2.65 and a cubic foot weighs about 166 pounds.

Practically all of the brilliant colors of the petrified wood are caused by traces of oxides of iron, including the shades of red and even the greens. Manganese oxide, and occasionally carbon, is responsible for the blacks. It is thought that the color of amethyst crystals is the result of refraction of light. Opal contains some water which responds to the effects of light to make iridescence. Impurities are also responsible for some of the colors.

There are petrified wood areas distributed all over the world. The quantities are not conspicuous nor the colors extraordinary, but it is apparent that petrification has occurred omnipresently since the advent of life upon the earth. Nature selected Arizona to demonstrate her utmost ability, and here is administered the world's superlative example of the phenomenon. The rangers' paramount responsibility is to protect the wood; it must not be molested or removed by those who come to see it; and secondly, the rangers are here to assist the visitors. We appreciate people who permit us to devote our entire time to being their

Logs are broken in equal- or multiple-length sections.

National Park Service



hosts and showing them the reservation.

The paleontology of Petrified Forest National Monument includes the phytosaur, "a bad dream of the Triassic period." His nostrils were on top of his head and his bones show that he was some eighteen feet long and probably weighed 1800 pounds. The modern crocodile seems to be the nearest form living today which resembles it. "He ate lungfish and, in the case of extreme privation, he offset the pangs of hunger by devouring his playmates, his brothers and sisters, given a smaller and weaker kin."

"The best we can say about the stegoccephalian is that he was in possession of more matter than mind, since he was nine feet long and weighed nearly 600 pounds and had no brains to speak of." His closest relative remaining upon the earth is the indigenous salamander which in adulthood is only twelve inches long. "It was well, perhaps, that he was blessed with foresight, 'sidesight' and 'topsight' as he possessed 150 percent eyesight, having three eyes, one in the middle of his forehead. Evolutionists would have us believe that the vestige of this third eye is known as the pineal body and is located today in the front part of the cerebellum in every human being."

"At this time there lived a blob of blubber known as the dipnoi lungfish. That was so long ago that there was neither bird, bee, nor butterfly to flit overhead. When he looked upward, all he could see were large ferns, horsetails, and brackens. When he crawled close to shore, using his flippers to help him along, he lay in stagnant water under the shade of cycads and brakes among the club mosses called lycopods."

Then there was the anomodont, "one of the very first creatures that had sufficient energy and backbone to raise its belly from the mud, and stand on all four legs. He was a large rhino-like reptile. In his veins flowed real red, warm blood and all because he rose above the common earth that had sucked the heat from the bodies of his ancestors."

We have many fossil tracks in our research laboratory and some of them may have been made by the dinosaur. If so, the tracks indicate that he was only the size of a cat in his chain of evolution. He developed after the trees were petrified. He grew to mammoth size after the Triassic, through the Jurassic and Cretaceous periods and then he became extinct, perhaps because he was too large. He left the earth, and where did he go? a visitor asked. "That would depend upon the kind of life he lived." But he was gone before mammals arrived—the three-toed horse, other primitive forms, the moderns, and last of all, man. Man as he is today is estimated to be only a few thousand years of age, and our womenfolk are already referring to him as "old fossil."

"At noontide, the Arizona sun beating down flattens the badlands into a molten blur of color, seemingly running together without regard to form or shadow. In 1539, when stern old Spanish conquistadors passed through this region, they paused long enough in their avid search for gold and fame to record the impression 'El Desierto Pintado' by Coronado as he journeyed across what must have been to him a strange land of mystery and enchantment."

A new national archeological monument, Effigy Mounds, in Iowa, was established last October by Presidential proclamation. The area is 1000 acres in extent, located in Alamahee and Clayton counties on the Mississippi River bluffs. Chief feature is a series of earthen mounds in the shapes of birds, bears and other animals, used as burial places. The figures, raised two and a half to four feet above the surrounding ground level, vary from seventy to 120 feet across. Objects found on the sites are pottery, stone axes, copper awls, clay pipes and harpoon points of bone.

BIG BEND ROUNDUP

By STANLEY A. SPRECHER, Ranger

Big Bend National Park

WHEN Chief Ranger George Sholly, in charge of the roundup, told us that we'd start riding at dawn Monday, we learned he meant what he said. That morning early, while the stars still studded the Texas sky, we rolled up our bedrolls; the chill of the predawn wind was a sharp reminder that winter had not entirely yielded to spring. There are few things as warming at hot prebreakfast coffee, strong enough to float a horseshoe, as tall Texas talk would put it. The stimulating smell of bacon and eggs frying in the dark was enough to arouse any late stragglers. Our chore, before we ate, was feeding the riding horses tethered to mesquite bushes overnight. Our working day hours were reversed to be nearer 5 A.M. to 8 P.M. than the usual 8 to 5, but additional working hours in the day of the ranger are nothing new.

Just as Big Bend National Park itself is, in some respects, unique, so the roundup of trespass stock in the park is also unique. This is particularly true with regard to the problem of "wet stock," that is, stock which has crossed the Rio Grande from Mexico. The park being situated on the border, where the Rio Grande makes a hundred-mile U-shaped bend, it is not surprising that Mexican mules, horses, and cattle—stray, semi-stray, feral and domestic—find their way across the international boundary.

Not all of the trespass stock we gathered was wet; final figures showed that of the 109 head of horses and mules taken, eighty-seven had crossed the river from Mexico and twenty-two had brands indicating American ownership. In addition, another

hundred or so were reported to have been driven from the park by their owners. Once the word got about that the park was being cleared of trespass stock, ranchers having land bordering the park initiated roundups of their own. Much of the park boundary remains unfenced, and as was true in frontier days, there are those not averse to using more range than they own.

Recently, parts of the park boundaries have been fenced, including certain vital watering places upon which trespass stock had come to depend. The elimination of these has helped to mitigate the problem of trespass stock; yet as long as private holdings remain in the park, and especially unfenced areas of this kind, the problem will continue. The river border, also, is likely to remain a problem with respect to trespass stock, as well as in other ways: control of hoof and mouth disease, boundary surveys, and proper use of the river, to mention but a few of the problems that Superintendent Ross A. Maxwell has to deal with. Big Bend's location brings the Park Service into contact with many governmental agencies, among them, Border Patrol of the Immigration Bureau, Civil Aeronautics Authority, Customs Service, International Boundary Commission, the Soil Conservation Service and Bureau of Animal Industry.

It was in cooperation with the Bureau of Animal Industry and Customs Service that the stock drive was made possible; the Department of Agriculture's River Riders and the Customs agents helped to augment the park ranger force of four men. Further-

THE COVER—This scene shows the mouth of Santa Elena Canyon, where the Rio Grande breaks through the Mesa Angula. The cliff on the left is in Chihuahua, Mexico, and the one on the right is in Big Bend National Park, Texas.

more, the BAI-boys, so-called because of their employment with the USDA's Bureau of Animal Industry, know the river country far better than others. In their patrol for possible carriers of the dread hoof and mouth disease, these riders cover almost every part of the river, and so proved invaluable as sources of information regarding the location of trespass stock.

Before the sun topped out over Mariscal Mountain, we were under way, beginning our push of all trespass stock westward, our day's destination being the former Johnson Ranch, some fifteen miles up the river from Sunday's camp. Ten riders spread themselves in a line northward from the river for a distance of about ten miles, concentrating their attention on such areas as water holes and draws most likely to be used by stock. Our two trucks carrying the chuck box and other gear followed, using remnants of roads remaining in the back

country from the days when the sunny side of the Chisos Mountains was busier with ranch and ore traffic. The only pause was a midday halt for food and water. Gathering two or three head here and there as we rode along, we had twenty-eight horses and mules rounded up by late afternoon. These we drove into a trap, a fenced area adjacent to the corral, where we kept them until morning.

Though the sun's rays were intense enough to make riding a warm task at noon, the river air turned cold almost the instant the sun dropped behind Mesa de Anguila. At the former Johnson Ranch, where we overnighted, we had a roof over our heads if we cared to spread bedrolls on the floor of a large building used as barracks by some of the BAI-boys patrolling that section of the river. For my part, I chose the out-of-doors, but found the moonlight almost as disturbing to sleep as the milling horses.

The drive toward Castolon.

Stanley A. Sprecher





Stanley A. Sprecher

Chief Ranger Sholly checks animals as brands are read to him.

The second day of the drive saw most of us a bit less anxious to get a-riding, and the few with our party who had ridden for the joy or novelty of it were glad to rest their sore haunches and relinquish the saddle to those who rode in line of duty. Tuesday's destination was Castolon Ranger Station, another fifteen miles up river, where a corral was built to hold the herd for clearance with the Customs Service. After the morning mists were dispersed, the day became hot; even the driven horses were content to walk in orderly fashion after an initial sprint upon being released from the corral. As we went along, riders alternated driving with covering the hills on either side to "throw in" horses found along the way. The herd had swelled to eighty head by the time we reached Castolon in late afternoon. To claim to have gathered all the trespass stock we saw would hardly be correct, in that an occa-

sional horse would either out-distance our park ponies or take off to some inaccessible area. Once we wrangled new horses near to those we were driving, they joined the herd very well, and got out of hand but rarely. When trouble did flare up, it was usually when a strange stallion was introduced to the herd. The major difficulty was getting isolated individuals headed toward the group.

A horse afire was an incident on the unusual side. Ranger Glasscock, also known as "Mister Henry" because of his seniority in years, swore that he smelled some burning cloth or hair. Failing to discover what might be burning on other riders, he decided to check his own mount, Bingo. After removing the saddle, he found that the burning was neither his horse nor his clothing, but a felt sweat-pad under his saddle. Evidently a lighted cigarette had brushed against the pad and a spark had slowly burned a hole through the pad. In all his years as ranger, which included service with the Texas Rangers, when that organization was still concerned with chasing Pancho Villa, never had Mister Henry experienced riding a burning horse, though he had ridden ponies with plenty of "fire." When it came to reading tracks on the trail, few, if any, could match Ranger Glasscock's ability to tell what the seemingly illegible marks really indicated—number of cattle, horses, or burros, direction of their travel, how long since they passed, and even whether the animals were "wet." (Mexican horses are usually shod only on the rear feet.) Youth may be an asset to a ranger, yet judgment and experience, which are acquired with years, can be just as important and often are better learned from nature's sermons in the sand than in college halls.

After completing Tuesday's drive, Ranger Cotter's kitchen, equipped with wife, was a pleasant change from camp chow, which often was overseasoned with sand. Better still, the luxury of sitting down to a prepared meal early in the morning is most

appreciated after a few nights of sleeping outside. Wednesday's drive was also made easier by the fact that we started from Castolon unhindered by any stock to drive. The area we covered was northwest of Castolon, from Rattlesnake Mountain on the park boundary, to the river; this area had been worked earlier and our take for the day was but twenty-nine head, of which only three were "wet." Riding close to the river actually proved to be harder than riding the rougher gravel-slopes, for vegetation was more dense—in places the cane and cat-claw thickets were impenetrable. Old Blue, my mount, proved to be fully as agile in running the sandy creek beds as he had been in traversing the rocky slopes, and actually seemed to enjoy the chase.

One cannot help but marvel at these Spanish ponies reared in the dry Southwest. To the Mexican, in addition to furnishing a means of transportation, the horse at times supplies him with hair for the making of ropes and lariats; this accounted for the bobtails of some of the horses we found. A few of these "wet horses" slipped back across the river to their owners before we headed them toward the Castolon corral. On our Wednesday drive, we rode near the mouth of Santa Elena Canyon, most visited of the park's canyons. It is imposing when viewed at a leisurely pace, although many visitors try to "do it" in the ten minutes or less, so often allotted by the typical tourist in his hurry to see another park.

Along the river the early bird migrants were already making their appearance, and the annual thrill of seeing the first robin of the year was even greater experienced in the desolate canyon country. But the greatest of avian thrills on the trip was witnessing the migration of a flock of some sixty sandhill cranes, *Grus canadensis*, winging their way at a comparatively low altitude as they sounded their repeated call, "a deep trumpet-like k-r-r-r-oo" as Roger Tory Peterson puts it.

Thursday was spent at the Castolon cor-

ral securing blood samples of each mare and stallion, and branding them with a hair-burned number for identification. This was done in compliance with USDA regulations providing that all "wet" stock capable of reproduction be tested as possible carriers of dourine, the most prevalent of equine venereal diseases. Thursday was also the day for reclaiming stock; it was interesting to watch the Mexicans draw their brand-designs in the dust, using their index finders as stylus. The \$18.00 redemption fee proved to be too costly for them and for most Americans; only two animals were claimed that day. After a dusty day of roping, branding and blood-letting, the animals were ready to move to the thousand-acre trap at the base of the Chisos Mountains, an area known formerly as "Nail's Ranch."

The rugged route from the river took us

Ranger Sprecher with a friend and
"Old Blue" at the chuck box.

Stanley A. Sprecher





Stanley A. Sprecher

Trespass animals await their turns for blood tests in the Castolon corral.

through twenty miles of country hard to match for its sheer primitive beauty. The plant associations changed as we gained elevation, but jack rabbits were abundant as they are in all parts of the park, darting out often frightening our horses. Deer, from time to time, were seen from a distance, but usually they saw us first and retreated. Yet the many tracks along the way attest to their abundance.

Less to our liking were the feral burros, which present a problem of no minor importance. These wary little donkeys overgraze certain sections to a damaging degree. From one elevation called Burro Mesa, they look down with disdain on all who pass. They probably wondered at the sight of a hundred horses being hurried to the fenced enclosure which they, the burros, had long learned to avoid.

The procession from the river to Nail's Ranch was one not likely to be forgotten—the nicker of colts calling their anxious mothers amid the shuffle of strange stock, the amorous attention of stallions interested in mares too tired to protest undesired advances, the occasional flare of temper on the part of mules and over-weary horses, who would kick with both feet reflexively when another animal came near. All the while there was a constant reaching for a nibble of grass along the way. The herded

animals, as they traveled on, made a symphony of movement and color. When they climbed among the greening sotol clumps, topping out on the hogback ridges, the beauty of the scene was doubly enhanced by the billowy white clouds leisurely floating across the sky above them.

By midafternoon on Friday, we were hot and hungry, and those not carrying a canteen were thirsty enough to drink out of a cow track had one been found containing water. When at long last, the tanks of the former Nail's Place popped into view, all were glad that we had reached the end of the trail. For most of the trespass stock, it was indeed the end of the trail. Soon afterwards the horses were sold and shipped far from Big Bend.

Shortly after the roundup, scarcely a matter of weeks, some trespass stock was already beginning to cross that liquid line separating the park from the Republic of Mexico. So sometime another roundup will probably be the order of the day, and we'll be pounding leather and riding the range again.

Stray domestic animals are causing serious complications, not alone in Big Bend, but in many other parks. Watch for an article on the subject, soon to appear in National Parks Magazine.—Editor.

SENATE COMMITTEE ACTS TO PROTECT MAMMOTH CAVE

A YEAR AGO the outlook for continued protection of the natural wonders of Mammoth Cave National Park seemed discouraging. Plans for Mining City dam had advanced so far that appropriate action seemed difficult. Public opinion was alerted, however, partly by Mr. Tom Wallace's article "Mammoth Cave National Park in Danger." (See NATIONAL PARKS MAGAZINE for April-June 1949.) The article was reprinted and given wider distribution by the Outdoor Writers Association of America and other organizations, and practical methods of combatting this threat were worked out. There now appears to be an excellent chance that the park will be safeguarded.

A long step forward was taken when Senator Virgil Chapman of Kentucky secured the amendment of the omnibus Rivers and Harbors bill specifically to prohibit the use of any funds authorized in that bill for construction of the dam.

Every year, a Rivers and Harbors and Flood Control bill is presented to Congress to provide authorization of funds for construction projects planned by the U. S. Corps of Army Engineers. These projects include harbor and navigational improvements, flood control proposals and other similar works, all of which have been previously authorized by Congress. After these bills are enacted, definite appropriations for any of the projects included in them may be requested of future sessions of Congress.

H. R. 5472, before the 81st Congress, authorizes \$100,000,000 for the Ohio River basin, as approved in 1938. Part of this authorization was allocated in the bill for specified projects, the balance to be available for other phases of the over-all plans. Among these additional projects was the Mining City dam on Green River in Kentucky. If this dam is constructed, the flow of water through Mammoth Cave would be arrested and important features of the cave

would be inundated by a reservoir with fluctuating levels. The natural character, beauty and educational and recreational values of this famous national park would be damaged irreparably.

Believing that every step should be taken to prevent the construction of this dam, your Association suggested to Kentucky's congressmen and senators that the Rivers and Harbors bill be amended to state definitely that no part of the funds authorized were to be used to build this dam. The Kentucky delegation in Congress understands the importance of the national park to its state and does not want to see it damaged. Secretary of the Interior Oscar Chapman (at that time Under Secretary) meanwhile addressed a letter to both the Senate and House committees recommending a similar amendment, but before action was taken in the House Committee, the bill was reported to the floor.

Senator Chapman was later instrumental in having the following amendment added to the bill: "... the Mining City Dam and Reservoir, Kentucky, and alternates therefor, authorized by the Flood Control Act approved June 28, 1938 (Public Law Numbered 761, 75th Congress, third session), shall not be constructed if such construction would have any adverse effect on Mammoth Cave National Park." The Senate Committee report states that the Chief of Engineers shall "report to the committee for its approval the important features of his proposed plan for flood control in the Green River basin before any appropriation is requested for the construction of the Mining City Dam." Thus, the burden of proof is put directly upon the Corps of Engineers. The Rivers and Harbors bill, with this amendment, will go to the floor of the Senate and is expected to be voted upon shortly after Congress reconvenes in January.

Secretary Chapman also recommended that the initial approval for construction

of the dam be cancelled, as can be done by special action of the Congress. This would solve the problem, and the National Parks Association is working toward that end.

Recently, another river control project affecting Mammoth Cave has come to light. In 1906, many years before the national park was established, a navigation control structure known as Lock 6, was built downstream from the cave on Green River. This lock, designed to facilitate use of the stream by boats, backs water into the cave and raises the normal level of Echo River there about eighteen inches. This drastically slows the flow of the river, so that its load of sediment could not be flushed out of the cave. During the ensuing years this silt has been filling up the bed. Eventually, according to the statement made by the

National Park Service before the Senate hearing on Green River navigation matters at Henderson, Kentucky, on October 12, 1949, the increased siltation engendered by the lock will extend beyond the point of practical control and will permanently block the Echo River portion of Mammoth Cave.

Lock 6 has served its early purpose and today appears to be of no practical value. Only a few pleasure boats have passed through it in the past several years, and no economic or navigational benefit is now derived from it. The National Park Service has recommended that the lock be removed or the gates partially opened to lower the water to an elevation that will permit the normal flow of the cave's Echo River.

ISLE ROYALE

(Continued from page 9)

occasionally by the sighing of a light wind through the fir tops. High in the sky ducks raced southward. The breathless hush of approaching winter was slowly enveloping Isle Royale.

Reluctantly we prepared to leave. In a few days, Ranger II, official Park Service boat, would sail for the mainland and we must of necessity be on board. But how depressing the thought! The wildest, weirdest, loneliest period of all the year was approaching, and this the lover of wilderness solitude would watch in breathless awe as he settled down to await its onslaught.

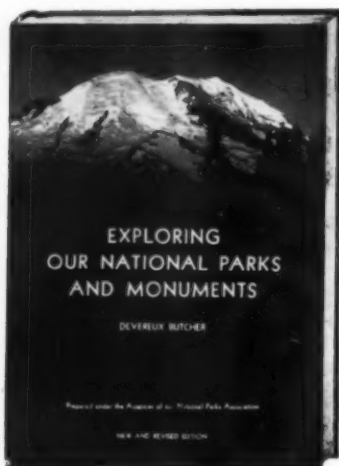
Three days later we stood on the stern deck of Ranger II and watched the dark

island forests slowly sink lower and lower into the turbulent waters of Lake Superior. Again an ominous leaden sky hung low over the islands and as they disappeared in distant mists, our thoughts drifted back to the interior of those forests, to the moose trails and the great beasts that trod them; to those huge black woodpeckers with pointed flaming crests of scarlet; and to the coyotes, sending forth their mournful cries through the night, as little snowshoe rabbits cringe in terror. All this and much more were the glorious impressions brought back from Isle Royale, one of the finest island sanctuaries in America. May it always be so, protected and preserved in its present primeval state, free from man's "civilizing" influences.

PRESIDENT BARS AIRPLANES FROM A WILDERNESS

As we go to press, wilderness protectionists have won a victory. On December 19, President Truman announced the signing of an executive order prohibiting airplanes in the Superior National Forest Roadless Area. The prohibition takes effect January 1, 1951. Resort owners affected by it are granted one year for adjustment. After January, 1952, flying over the wilderness below 4000 feet, except for rescue or administration, will end. This ensures preservation of the wilderness. Conservation forces of the country supported the proposal assuring the President he was acting in the best interests of the nation. (The full story will appear in the April-June magazine.)

The National Park Service reports another record number of visitors to Park Service areas. From October 1, 1948, to September 30, 1949, there were 31,864,180, as compared with 29,608,318 for the preceding year. Great Smoky Mountains led, with 1,510,636. Rocky Mountain, Yellowstone and Shenandoah, among the great parks, also topped the million mark, as did the Blue Ridge Parkway and Lake Mead National Recreational Area. Mount McKinley and Isle Royale had 4820 and 9543 visitors respectively, lowest figures for the primeval parks. The three smallest numbers were checked up for Yucca House and Hovenweep national archeological monuments, 17 and 225 respectively, and Grand Canyon National Monument, 135. The last three areas have not yet been made accessible.



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THE EDITOR'S BOOKSHELF

THEY ALL CALLED IT TROPICAL, True Tales of the Romantic Everglades National Park, Cape Sable and the Florida Keys, by Charles M. Brookfield and Oliver Griswold. Published by The Data Press, Coconut Grove, Florida, 1949. Illustrated. Seventy-seven pages. Price one dollar.

With foreword by Daniel B. Beard, Superintendent, Everglades National Park, and introduction by John D. Pennekamp, Associate Editor, The *Miami Herald*, and Legislative Chairman, The Everglades National Park Commission, this little book gives a thrilling, fast-moving account of the colorful history of the Everglades and keys country. The story begins with a description of the wild Cape Sable and adjacent 'glades as they must have appeared in the days when the Caloosa Indians were the only human inhabitants of that vast wilderness.

Taking much of their data from authentic government records and early newspaper accounts, the authors tell of treasure-laden galleons running aground on "Los Martires," as Ponce de León called the coral reefs that fringe the keys; of "Spanish pirates based mainly in Cuba, but also using the Florida keys for rendezvous," and of the era of the wreckers, when a flourishing business in salvaging cargoes of wrecked ships sprang up at Key West and Indian Key, bringing almost \$300,000 to Key West in a year.

The visit of John James Audubon to the region, and his collecting of birds from which to paint many of his now world-famous paintings is described, as is also the attempt of Dr. Henry Perrine to establish a plantation on Cape Sable for introduction of exotic tropical plants "to enhance the agriculture of the whole United States."

The Indians, a constant threat to the white men, were subdued only by a long struggle. A number of hair-raising episodes

in this struggle are brought out vividly in the four chapters entitled "The Blood-Red Years," "Green Grow the Monuments," "Indian Espionage" and "Harney's Hanging Party."

Both authors being nature enthusiasts and members of the National Parks Association, that phase of the region's history having to do with the protection of birds and preservation of wilderness is ably told. The story concludes with the victorious establishment of the Everglades National Park, in 1947.

Prospective visitors to the park and to the keys should read this book, for it will add immeasurably to their interest while in the region.

CAPTURED MOODS OF GRAND CANYON, a Series of Color Studies of Grand Canyon National Park, by Louis Schellbach, Park Naturalist. Obtainable from the Grand Canyon Natural History Association, Grand Canyon National Park, Arizona. Illustrated. Thirty pages. Single copies \$1.50; dealers' price in lots of twenty-five or more, 75 cents.

Mr. Schellbach, who has served as park naturalist at Grand Canyon for many years, is skilled in the use of kodachrome film, and with ample opportunity to see the canyon in all its varied moods, has amassed a large and fine collection of color transparencies of it. In his publication, he has assembled some of his best shots. When seen together, their contrasting color schemes are surprising. A scene entitled "Alpen Glow" shows near escarpments in bright orange light, with the canyon beyond in deep shade. Another entitled "Lowering Weather" shows the canyon in cool gray-green, with clouds weaving among the peaks. "Shadow Patterns" is a view taken in mid-afternoon on a cloudless day, with dark shadows cast by the escarpments. "Sunset Storm" is one of startling

beauty showing thin veils of rain gilded by the sunset, with the canyon faintly visible through them.

The fifteen reproductions measure six by four and a quarter inches, each printed on a separate page, eleven by nine inches, heavy white paper with mat surface. Grand Canyon enthusiasts will want to own this set of full-color pictures.

THE PRESERVATION OF WILDERNESS AREAS,

An Analysis of Opinion on the Problem, by C. Frank Keyser, Regional Economist, Legislative Reference Service, Library of Congress. Printed by the U. S. Government Printing Office. Obtainable from the Wilderness Society, 1840 Mintwood Place, N. W., Washington 9, D. C. 114 pages. Price 25 cents.

In 1943, at the request of Congressman Raymond H. Burke, the Legislative Reference Service sent out a questionnaire to the federal bureaus administering lands, to more than 200 state officials and to more than a hundred private organizations, including the National Parks Association. The questionnaire, varying somewhat in accordance with the several kinds of organizations to which it was sent, sought to determine "whether there is any need or advantage in a common set of standards for the selection of areas for preservation, and if so, how these are to be formulated" —should they be in the form of a congressional act "with standards spelled out" as was done for the national parks in the National Park Service Act of 1916, or by a general declaration of policy on the part of Congress? The basic purpose of the questionnaire was to explore the background of the questions concerning the remaining American wilderness.

The pamphlet gives the highly interesting results of the study. Replies from the federal bureaus are given separately for each bureau. The Forest Service is closest to the problem of administering existing designated wilderness areas, and its response contains factual data on the several

phases of protection. The Bureau of Indian Affairs gave information on a number of large wilderness tracts under its jurisdiction, about which little is known to the general public. The Fish and Wildlife Service discussed a number of the large wildlife refuges which contain sufficient roadless country to be considered as wilderness.

Replies from state agencies were summarized under specific questions. They showed that large tracts of comparatively undisturbed state lands are not usually assured permanent protection, and officials did not, as a general rule, show a great deal of knowledge or interest in the preservation of wilderness.

Opinions of private organizations are summarized, and are as varied as the purposes and pursuits of the organizations. Question 8 asks if there are "any regions which you may consider suitable to be preserved as wilderness areas which are not now receiving special protection as such?" The replies to this were unusually interesting. An astonishingly large number of areas from coast to coast and in Alaska and Hawaii were suggested for protection —many of them perhaps little known even to those who are close to the wilderness preservation movement.

The Legislative Reference Service deserves great credit for undertaking this worthwhile study reflecting the nation's most informed thinking on the subject.

OUR RENEWABLE RESOURCES CAN BE SUSTAINED, proceedings of a round-table symposium of the Natural Resources and Agriculture departments, the Chamber of Commerce of the United States, 1949. Obtainable from the Chamber of Commerce of the United States, 1615 H Street, N. W., Washington 6, D. C. Thirty-one pages. Single copies free on request; ten copies or more, 10 cents each.

Leading speakers at the symposium were Fairfield Osborn, President, New York Zoological Society and The Conservation

Foundation, author of *Our Plundered Planet*, (Little, Brown, 1948), and a member of the Board of Trustees of the National Parks Association; Charles E. Kellogg, Chief, Soil Survey of the U. S. Department of Agriculture and author of *The Soils That Support Us*; Louis Bromfield, farmer and author of several books and articles dealing with soil conservation and farming; J. P. Weyerhaeuser, Jr., President, the Weyerhaeuser Timber Company, now active in the tree farm program. Subjects discussed were modern economy's threat to our resources, prospects of soil science, a farmer faces the problem, and answering the threat of forest depletion. The four talks, and the question and answer period that followed, are extremely interesting, dealing as they do with a problem in which every one of us is involved. The publication deserves reading by a wide public. It is well suited for classroom use.

COME UNTO ME, A Book for Personal Devotions, by Charles Franklin Parker. Published by Rinehart and Company, Inc.,

New York. Illustrated. 104 pages. Price \$3.50.

The large handsome format and full-page pictures are appealing. As stated by the author, the book "interprets the twenty-eight national parks, Colonial National Historical Park, Jefferson National Expansion Memorial and Jasper Canadian National Park, and brings fatigued souls the assurance, 'I will give you rest.'" In quotations from the Bible, poems by well-known poets and writings of the author that interpret and explain, it shows the spiritual significance of nature. The collection of poems, more than thirty in number, are from the pens of many well-known writers, including Henry van Dyke, John Greenleaf Whittier, Christopher Marlowe and Robert W. Service. A poem by Badger Clark on Wind Cave, and one by Emma K. Burgess about Mammoth Cave, are especially beautiful. Never before, perhaps, has the spiritual impact of nature's exhibits upon the human mind been so painstakingly revealed as in *Come Unto Me*. The pastor of the First Congregational Church, Prescott, Arizona, has produced an inspiring book.



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LAKE SUCCESS RECOMMENDATIONS

As a follow-up to a report on the International Technical Conference on the Protection of Nature, Lake Success, New York, August 22-27, 1949, (See Alerting the United Nations, NATIONAL PARKS MAGAZINE for October-December, 1949) we present here the resolutions adopted by the conference:

RESOLUTION N° 1

Whereas: The United Nations and its Specialized Agencies are studying programmes of technical assistance for under-developed countries, which programmes to be effective require the application of human ecological principles, ecology being understood in its widest sense to include all human relationships—individuals and groups—with the problems discussed, it is essential that existing information should be collected and new studies that are urgently needed should be initiated;

Whereas: It is recognized that one of the first and greatest responsibilities of the United Nations and its Specialized Agencies concerned with the use of resources, and of the International Union for the Protection of Nature, is to increase knowledge of human ecology, and to assure its application on a scientific basis;

Whereas: This Conference recognizes the necessity of close and continuous integration of all programmes and methods for the study of human ecology,

Therefore this Conference resolves: That the International Union for the Protection of Nature recommend to the above-mentioned bodies the promotion of studies of suitable areas as a step towards the development of an adequate methodology for investigation of human ecology;

Further resolves: That such studies be conducted along the following lines:

1. One or more ecological areas shall be selected for thorough-going study, including the human factors in the situation.

2. These ecological areas should be selected so that they shall be:

- a) practicable units for a simple, integrated programme, small enough to permit complete studies, and large enough to provide significant results;

- b) distributed through representative bio-geographic areas.

3. Each area shall be treated as a total dynamic ecological situation, including all possible factors such as soil, water, food, climate, plants, animals, and the people concerned, with special emphasis on their interrelationships.

4. These studies shall be made by teams of scientists trained in ecological methods. This multi-discipline and inter-discipline approach is to include the methods of the physical and biological sciences together with those of human ecology, medicine, sociology, anthropology, genetics, economics, and psychology.

5. These studies should be concerned not only with the amassing of data and the interpretation of the ecological situations under study, but also with the development and recording of the methodology used, including the logic, concepts, methods, procedures, techniques, and "inventions"—physical, biological, and social.

6. The findings of these studies, both in fact and in method, will assist in the orientation and integration of all the different disciplines applied in the studies.

7. The results of these studies should be published and made available to specialists. Also, popular versions of the significant results should be made available in several languages to the general public.

RESOLUTION N° 2

Whereas: The widest possible distribution of educational material is of fundamental importance for the progress of conservation,

The Conference resolves: That the International Union for the Protection of Nature request the United Nations Educational, Scientific and Cultural Organization to take all possible steps to facilitate the duty-free exchange of films, books and other documentary material dealing with the protection and conservation of renewable natural resources.

RESOLUTION N° 3

Whereas: The support which the idea of nature protection has gained from (1) the way in which the programme of the United Nations Scientific Conference on the Conservation and Utilization of Resources was set up, and (2) the fact that the above Conference was held at the same time and in the same place as the present Technical Conference,

The Conference resolves: That organizations con-

cerned with nature protection and conservation, and those concerned with the utilization of resources should collaborate to the greatest possible extent.

RESOLUTION N° 4

Whereas: The Conference recognizes the importance of encouraging youth movements in favor of nature protection and conservation, such as already exist in a number of countries,

The Conference resolves: That the International Union for the Protection of Nature take steps to bring into being youth clubs devoted to the study and conservation of nature, in all countries.

RESOLUTION N° 5

Whereas: Some countries have developed to a high degree the science and technology of conservation, offering important opportunities for study and training, and

Whereas: Such study and training would be of special importance in connection with the technical assistance programme of the United Nations for under-developed countries,

The Conference resolves: That the United Nations Educational, Scientific and Cultural Organization and the Food and Agriculture Organization of the United Nations promote international fellowships for study and training in countries with a highly developed conservation science and technology.

RESOLUTION N° 6

The Conference resolves: That the International Union for the Protection of Nature recommend to Unesco that it inform governments of the vital need for the introduction of the teaching of the principles of nature protection and conservation in the curricula of primary and secondary schools, and of universities and technical colleges, either as special courses or as part of existing ones related to the subject matter.

RESOLUTION N° 7

Whereas: The development of large-scale projects is making at present unforeseen and often serious changes in the natural conditions of the regions involved,

The Conference resolves: That the International Union for the Protection of Nature should envisage the possibility of promoting, in co-operation with one or more of the organizations executing such projects, detailed ecological surveys which would furnish at the same time the most vital data in regard to these developments on the over-all living environment in the areas affected and valuable information to guide the development of similar projects.

RESOLUTION N° 8

Whereas: The effective regulation of the use of insecticides, fungicides, herbicides and rodenticides for the protection of human interests is of concern to the Food and Agriculture Organization, the World Health Organization and the United Nations Educational, Scientific and Cultural Organization,

The Conference resolves: That the above Specialized Agencies of the United Nations should investigate the establishment of a Permanent Joint Commission on Pesticides or some other appropriate means of co-ordination to deal with the problem.

RESOLUTION N° 9

Whereas: It is recognized that some countries have sufficient and effective regulations for the use of insecticides, fungicides, herbicides and rodenticides for the protection of human interests, this Conference believes it important that more attention should be drawn to the control of these chemicals and biological methods from the point of view of protecting the equilibrium of nature to prevent destruction of animal and plant communities.

Therefore the Conference resolves: That the International Union for the Protection of Nature recommend to the International Commission for Agricultural Industries, who already have an active section for the standardization of pesticides on an international basis, the preparation and inclusion of such a programme in its activities:

That proposals should be worked out and transmitted to the co-ordinating body formed by the Food and Agriculture Organization, the World Health Organization, and the United Nations Educational, Scientific and Cultural Organization, as recommended in Resolution N° 8.

RESOLUTION N° 10

The Conference resolves: That the International Union for the Protection of Nature transmit to the co-ordinating body referred to in Resolutions 8 and 9 the following proposal:

That the spraying of pesticides by means of airplanes and of powerful sprayers be regulated and not be made available to private individuals without special permission and scientific control from a qualified official body.

RESOLUTION N° 11

Whereas: Recent progress made in the treatment of cattle in Africa, particularly their immunization against trypanosomiasis, and the consequent possibility of a large increase of cattle, which might have unfortunate results (overstocking, over-grazing, etc.) if no regulation is

undertaken with regard to the problem as a whole.

The Conference resolves: That the utilization of treatment to cattle in Africa be undertaken with caution and especially that related ecological data be borne in mind before opening up that part of Africa where the tsetse fly has hitherto prevented the large-scale development of agriculture and cattle breeding.

RESOLUTION N° 12

The Conference resolves: That in view of the fact that the introduction of exotic species often conflicts with the conservation of native species, the International Union for the Protection of Nature should consider recommending to governments which have not yet done so, that they submit their plans for the importation of animals and plants for approval by a committee or by one of the scientific services dealing with nature protection and conservation. That this applies in particular to the creation of parks for exotic animals, industrial breeding projects (fur animals, etc.), and fish farming.

RESOLUTION N° 13

The Conference resolves: That the International Union for the Protection of Nature, in certain countries or groups of countries, promote the establishment of scientific committees, if such committees do not already exist, composed of a small number of naturalists or ecologists to supply the International Union for the Protection of Nature with information in the field of ecology and the true situation with regard to the protection of nature.

RESOLUTION N° 14

The Conference resolves: That the conservation of the Orang-Outangs of Borneo and Sumatra, of the few rhinoceros still in existence in Java and Sumatra, of the *Varanus komodoensis* and of other types of animals protected or to be protected, should be assured in Indonesia, and that the International Union for the Protection of Nature obtain documentation on this matter and take the necessary steps.

RESOLUTION N° 15

Whereas: The world is faced with an increasing list of threatened and vanishing species of fauna and flora,

The Conference resolves: That the International Union for the Protection of Nature should establish a "survival service" for the assembling, evaluation, and dissemination of information on, and the study of, all species of fauna and flora that appear to be threatened with extinction, in order to assist governments and appropriate agencies in assuring their survival.

RESOLUTION N° 16

The Conference resolves: That the International Union for the Protection of Nature recommend to governments or appropriate authorities that they take immediate and vigorous action to preserve threatened and vanishing species of fauna and flora, and call to their special attention the following partial list of examples of vanishing species of birds and mammals, the survival of which is a matter of international concern:

Birds: Arabian Ostrich (*Struthio camelus syriacus*), Hawaiian Goose (*Nesochen sandvicensis*), New Caledonian Kagou (*Rhynochetus jabatus*), Indian Pink-Headed Duck (*Rhodonessa caryophyllacea*), Australian Ground Parakeet (*Pezoporus wallicus*), Laysan Duck (*Anas lysanensis*), Marianas Mallard (*Anas oustaleti*), Cuban Ivory-billed Woodpecker (*Campephilus principalis bairdii*), Bermuda Petrel (*Pterodroma cahow*), Marianas Megapode (*Megapodius laperouse*), California Condor (*Gymnogyps californianus*), Eskimo Curlew (*Numenius borealis*), North American Whooping Crane (*Grus americana*).

Mammals: Javan One-Horned Rhinoceros (*Rhinoceros sondaicus*), Indian Rhinoceros (*Rhinoceros unicornis*), Asiatic Lion (*Leo leo persicus*), Burmese Brow-Antlered Deer (*Rucervus eldii eldii*), Giant Sable Antelope (*Hippotragus vari-ani*), North African Bubal (*Alcelaphus buselaphus*), Tasmanian Wolf (*Thylacinus cynocephalus*), Marsupial Banded Anteater (*Myrmecobius fasciatus fasciatus*), Wisent (*Bison bonasus bonasus*), Chinchilla (*Chinchilla*, all species), Mountain Zebra (*Equus zebra zebra*), Caribbean Monk Seal (*Monachus tropicalis*), Addo Bush Elephant (*Loxodonta africana africana*), Cuban Solenodon (*Solenodon cubanus*).

And proposes further that the Union should maintain an open list of such rare and threatened animal species with their areas, associations and habitats, and that it should promote or sponsor such ecological research as would determine the exact status of such habitats and would enable adequate and reliable advice to be offered to the governments concerned and to the interested local organizations as to what measures would be necessary and effective for their preservation.

RESOLUTION N° 17

The Conference resolves: That the Union recommend the governments or appropriate authorities to take immediate and vigorous action: to protect areas supporting plant communities which contain rare or vanishing plant species, such as, for example, the small strip of native forest remaining on Peleliu, of the Palau Islands (*Capparis carolinensis*), the dry forest on the

Islands of Lanai, Hawaiian Islands (with its collection of relict endemic plants), the Desvenduradas Islands (with their almost completely endemic flora), the high ridges of St. Helena Island, the remaining forests of Guadeloupe Islands, Mexico, the habitat of *Rafflesia Arnoldi* in Indonesia, and the relict forest of Mt. Gouda in French Somalis,

And proposes further that the Union should maintain an open list of such rare and threatened plant species with their areas, associations and habitats, and that it should promote or sponsor such ecological research as would determine the exact status of such areas and would enable adequate and reliable advice to be offered to the governments concerned and to the interested local organizations as to what measures would be necessary for their preservation.

RESOLUTION N° 18

The Conference resolves: That the International Union for the Protection of Nature urge the Government of India to recommend to the Provincial Government of Assam that it take such steps, in collaboration with the International Union for the Protection of Nature, as may be practicable to protect and preserve the Great Indian One-Horned Rhinoceros (*Rhinoceros unicornis*), especially in Kaziranga Sanctuary, which should be set aside as an inviolable Rhinoceros Sanctuary.

RESOLUTION N° 19

The Conference resolves: That the International Union for the Protection of Nature should suggest to the government of the United Kingdom the convening of a meeting of all the signatories of the London African Convention of 1933, in order that each may make a progress report and that appropriate action may be taken;

that the International Union for the Protection of Nature should suggest to the Organization of American States the convening of a meeting for discussing the implementation of the 1940 Western Hemisphere Convention.

RESOLUTION N° 20

After having received evidence on the present state of the Camargue Reserve of southern France, on the poaching and on the dangers that seem to be in store,

Acknowledging with particular thanks the efforts that are being made constantly by the Société Nationale d'Acclimatation de France, which ensures the management of this reserve.

Considering that the fauna which seeks and finds a refuge in the Camargue offers a tremendous interest for science, whereas the presence of numerous migratory birds explains why various European countries show their keen desire to

protect these birds, and whereas the preservation of these species and consequently of their habitat is of foremost biological importance,

Noting the wish that has been brought about by numerous scientific associations and persons, with the view of having the protection of above-mentioned Reservation put under strict supervision by appropriate regulations,

The Conference resolves:

That the International Union for the Protection of Nature ask the French Government to take all necessary steps in order to guarantee by appropriate measures, that the Camargue Reserve, its fauna and vegetation, be given the status of a permanent and inviolable refuge; to prohibit by all means any poaching, and any penetration into its territory by visitors during the breeding season, and the low flying by aircraft over reserved territories;

to study and discuss, together with the International Union for the Protection of Nature and with the Société Nationale d'Acclimatation de France, a scheme by which institutions of other countries would be associated in the control of the Camargue Reserve; and

To tentatively initiate therefore a formula by which international co-operation might later be extended to other protected territories.

RESOLUTION N° 21

Whereas: The Third Session of the United Nations Educational, Scientific and Cultural Organization General Conference at Beirut in 1948 passed Resolution 3,512 which was examined by this Conference, and

Whereas: The conservation of food resources is one of the primary responsibilities of the Food and Agriculture Organization of the U. N., and

Whereas: The International Union for the Protection of Nature brings together specialists of various countries who are concerned with the fundamental scientific problems of conservation,

The Conference resolves that:

a) The functions of Unesco in a world-wide programme for the conservation of food resources should be determined between Unesco and FAO. The educational and basic scientific aspects of such a programme should be given special consideration by Unesco;

b) When FAO or Unesco are confronted with fundamental problems of conservation of food resources, it would be to their interest if they consulted the International Union for the Protection of Nature, and the latter should give them every possible assistance. On the other hand, the International Union for the Protection of Nature should receive from FAO and Unesco all documentation and information pertaining to their work in conservation.

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